

Territory, Texas, Utah, and Washington. 24th, Arkansas, California, Louisiana, Missouri, Oklahoma Territory, Oregon, South Dakota, and Texas.

25th, California, Colorado, Louisiana, New Jersey, Oregon, Pennsylvania, Washington, West Virginia, and Wyoming. 26th, Iowa, Minnesota, Missouri, Nebraska, South Dakota, and Wyoming. 27th, Idaho, Indiana, Kansas, Louisiana, Michigan, Missouri, North Dakota, Oklahoma Territory, South Dakota, and Wisconsin. 28th, Connecticut, Indiana, Kansas, Massachusetts, Michigan, Missouri, New Hampshire, New Mexico, New York, Ohio, and Texas. 29th, California, Minnesota, Pennsylvania, South Dakota, and Texas. 30th, California, Iowa, Kansas, Maine, Minnesota, Nebraska, Nevada, South Carolina, and Texas.

SLEET.

Sleet was reported as follows: 2d, Alabama. 3d, Alabama, Nebraska, Nevada, and South Dakota. 4th, Alabama and Nebraska. 5th, Texas. 6th, Washington. 8th, Ohio. 9th, Maryland. 10th, Connecticut and Maine. 11th, Connecticut. 13th, Illinois, Iowa, Nebraska, and North Dakota. 14th, New York, Ohio, and Pennsylvania. 15th, Georgia, Massachusetts, and New York. 17th, Nevada. 18th, Colorado, Illinois, Nevada, and Pennsylvania. 19th, Kansas and Nebraska. 20th, Iowa, Kansas, and Pennsylvania. 21st, Iowa and Kansas. 24th, Nebraska and Ohio. 25th, Nevada, Ohio, and Pennsylvania. 26th, Nevada, Ohio, and Utah. 28th, Massachusetts. 29th, Idaho, Pennsylvania, and South Dakota. 30th, Nevada.

WINDS.

The prevailing winds in April, 1892, are shown on Chart II by arrows flying with the wind. In New England, the middle Atlantic states, the lower lake region, on the northeast slope of the Rocky Mountains, over the plateau region, and along the middle Pacific coast they were generally from southwest to northwest; in the south Atlantic states, from southeast to southwest; over the Florida Peninsula, from the southeast; in the Gulf States and the Missouri Valley, from east to south; in the Ohio Valley and Tennessee, from southeast to northeast, except in the upper Ohio Valley, where they were from northwest to north; in the upper lake region and the extreme northwest, from north to east; in the upper Mississippi valley, from northeast to southeast; on the middle-eastern and southeastern slopes of the Rocky Mountains, from south to west; on the north Pacific coast, from south to southwest; and on the south Pacific coast, from west to northwest.

HIGH WINDS.

[In miles per hour.]

Wind velocities of 50 miles, or more, per hour were reported at regular stations of the Weather Bureau as follows: 1st, 66, sw., at Leavenworth, Kans.; 64, sw., at Des Moines, Iowa; 64, w., at Amarillo, Tex.; 60, s., at Concordia, Kans.; 60, sw., at Davenport, Iowa; 60, nw., at Kearney, Nebr.; 60, s., at Sioux City, Iowa; 59, se., at Fort Canby, Wash.; 58, nw., at Dodge City, Kans.; 58, nw., at Cheyenne, Wyo.; 56, nw., at Valentine, Nebr.; 54, sw., at Chicago, Ill.; 52, sw., at Kansas City, Mo.; 50, w., at Wichita, Kans. 2d, 60, sw., at Fort Stanton, N. Mex.; 60, s., at Lexington, Ky.; 57, sw., at Port Huron, Mich.; 54, sw., at Chicago, Ill.; 54, sw., at Detroit, Mich.; 52, sw., at Davenport, Iowa. 3d, 64, s., at Amarillo, Tex.; 52, w., at Fort Stanton, N. Mex.; 50, sw., at El Paso, Tex. 4th, 66, s., at Amarillo, Tex.; 54, nw., at Kearney, Nebr.; 52, n., at Valentine, Nebr.; 51, sw., at Leavenworth, Kans.; 50, se., at Lexington, Ky. 5th, 63, sw., at Chicago, Ill.; 60, sw., at Port Huron, Mich.; 60, w., at Toledo, Ohio; 57, sw., at Detroit, Mich.; 52, sw., at Fort Assinaboine, Mont.; 50, sw., at Davenport, Iowa.

8th, 54, n., at Amarillo, Tex. 9th, 50, s., at Fort Canby, Wash. 10th, 54, n., at Amarillo, Tex. 13th, 54, nw., at Kearney, Nebr. 14th, 82, s., at Fort Canby, Wash.; 65, n., at Chicago, Ill.; 54, s., at Tatoosh Island, Wash.; 53, s., at Kitty Hawk, N. C. 15th, 54, ne., at Block Island, R. I. 21st, 60, se., at Lexington, Ky. 24th, 72, se., at Fort Canby, Wash.; 60, sw., at Winnemucca, Nev.; 50, e., at Tatoosh Island, Wash. 26th, 51, se., at Huron, S. Dak.; 50, nw., at North Platte, Nebr. 27th, 62, w., at Huron, S. Dak.; 54, se., at Kearney, Nebr.; 54, w., at Red Wing, Minn.; 52, sw., at Chicago, Ill.; 50, nw., at Saint Vincent, Minn.; 50, nw., at Bismarck, N. Dak. 28th, 68, s., at Fort Canby, Wash.; 65, nw., at Saint Vincent, Minn.; 52, w., at Red Wing, Minn.; 52, e., at Tatoosh Island, Wash. 29th, 62, sw., at Winnemucca, Nev.; 60, s., at Fort Canby, Wash.; 52, ne., at Kitty Hawk, N. C. 30th, 50, sw., at Dodge City, Kans.

LOCAL STORMS.

1st.—High winds and local storms prevailed from Kansas, Nebraska, and Texas to the western lake region. A destructive windstorm continued throughout the day at Cheyenne, Wyo. At Valentine, Nebr., the pressure decreased rapidly, and at 8 a. m. had fallen to 29.16, the lowest noted in 2 years. A thunderstorm, with heavy rain, ended in the early morning. A violent windstorm, with velocity 40 to 58 miles per hour, continued 24 hours, unroofing houses, etc. At North Platte, Nebr., a severe northwest gale prevailed. At Ottawa, Kans., a southwest gale in the early morning damaged property to the extent of about \$1,000. At Lawrence, Kans., the wind maintained a velocity of 70 to 79 miles per hour from 8 a. m. to 2 p. m., and reached a velocity of 90 miles per hour from 11.35 to 11.40 a. m. The estimated damage by high wind at Leavenworth, Kans., was \$50,000. A tornado moved northeast over the west part of Harvey county, Kans., destroying one house and prostrating a large number of trees.

High wind destroyed small buildings at Wakefield, Shields, Seneca, and Manhattan, Kans. At Topeka, Kans., the wind reached a velocity of 84 miles per hour from 11.20 to 11.25 a. m., and continued at the rate of 72 miles per hour until 3 p. m., causing damage of a minor character. The pressure decreased to 29.00 at 8 a. m. at Concordia, Kans., and the wind reached a velocity of 60 miles per hour, causing some damage. No serious damage was reported in southwestern Kansas. At Kansas City, Mo., a destructive gale began 2.20 a. m. and ended 7.05 p. m.; 6 persons were injured, one seriously, and property was destroyed to the value of about \$15,000. At Warrensburg, Mo., a church was blown down and other buildings were damaged. Considerable damage was caused by wind in Monroe county, Mo. Damage of a minor character was caused by high wind at Saint Louis, Mo.

Heavy gales prevailed over Iowa. At Des Moines, Iowa, the pressure was the lowest recorded in 5 years, and the velocity of the wind, 65 miles per hour at 3 p. m., with an extreme velocity of 100 miles per hour at 2.57 p. m., was the highest ever noted at that station. At Davenport, Iowa, a heavy rain and thunder storm occurred from 1.10 to 3.10 p. m., and the wind reached a velocity of 60 miles per hour. Considerable damage was caused by wind at Dubuque and other points in Iowa. At Chicago, Ill., a southeasterly gale continued throughout the day. A thunderstorm from 6.56 to 7.10 p. m. was attended by loss of life and great destruction of property. The wind reached a velocity of 54 miles per hour from the southwest; several buildings were blown down; a 7 story building was blown upon a 2 story tenement, killing at least 6 persons, and injuring many others. The estimated loss to property by the storm was \$40,000.

At Hinesborough, Ill., a tornado moved northeast in a path 200 feet in width at 5.30 p. m., with thunder and lightning and heavy rain after; one person was injured and the damage to property was placed at \$2,000. A second tornado was re-

ported near Hinesborough. At Cairo, Ill., during a thunderstorm in the afternoon, the wind reached a velocity of 48 miles per hour, and an extreme velocity of 60 miles per hour. A thunderstorm, with rain and high wind, occurred at Red Wing, Minn., in the evening. A heavy gale swept over Wisconsin at night.

2d.—A heavy thunderstorm moved northeast over Water Valley, Miss., between 9 and 10 p. m. At Detroit, Mich., a gale set in from the southeast the evening of the 1st, and changed to southwest on the 2d, reaching a velocity of 54 miles per hour at 12.44 p. m.

3d.—Severe storms occurred from Texas and Kansas to Pennsylvania. A heavy thunderstorm moved northeast near Gainesville, Tex., at 10 p. m., in a path 400 to 500 yards in width, destroying property to the value of about \$8,000. The storm had a whirling motion from right to left, and mud was spattered on the east sides of houses. Destructive storms were reported near Saint Jo and at Bellevue, Tex. A tornado was reported at Stillwater, Okla. Southern Kansas was visited by destructive storms in the afternoon. A storm visited Knoxville, Ark., between 4 and 5 p. m., damaging buildings to the extent of \$2,000 to \$5,000. At Liberty, Kans., a tornado moved northeast in a path about 50 feet in width at 2.30 p. m., killing one person and destroying buildings.

A tornado in the form of a black, curling, twisting cloud was observed at Cherryvale, Kans. A wind and hail storm caused considerable damage at Manhattan, Kans. At Altoona, Kans., a thunderstorm, with high southwest wind, continued from 10 a. m. until midnight. Some stock was killed by hail near Garland, Kans. A severe thunder, rain, and hail storm moved north over Columbus, Kans., in the evening; several houses were struck by lightning, and a number of buildings were blown over. Thunderstorms occurred at Kansas City, Mo., in the afternoon and evening. A heavy rainstorm, with high southerly winds, continued at Saint Louis, Mo., from the morning of the 3d to the morning of the 4th. The heavy rain flooded tracks at the Union Depot, and interrupted traffic on the electric street railroads.

Heavy rain was general over Missouri. At Barnett, Mo., a heavy thunder, rain, and hail storm moved northeast at 4 a. m., destroying 2 buildings and unroofing several others. A tornado moved northeast over Kirksville, Mo., at 9.10 p. m., with very heavy rain before, and thunder and lightning. The storm had a whirling motion from right to left; it bounded like a ball, touching the earth at intervals; the path was 150 yards in width, and the damage to property was placed at \$5,000. At 3.40 p. m. a tornado, moving northeast, passed north of Bosworth, Mo., in a path 200 yards in width and 3 miles in length, and destroyed property to the value of \$8,000. A funnel-shaped cloud was reported which seemed to lower to the ground at intervals. When the funnel touched the ground what seemed black smoke appeared. Two horses were killed by lightning near Clinton, Iowa.

Heavy rain fell in Illinois. At Springfield, Ill., a heavy rain and thunder storm continued during the day, flooding streams and washing out railroads in that section. Severe wind, thunder, and rain storms prevailed over Ohio, Kentucky, West Virginia, and western Pennsylvania. At Saint Clairsville, Ohio, a heavy rain and hail storm moved northeast at 4.30 p. m. High wind caused damage near Central City, Ky. Heavy hailstorms caused great damage in West Virginia. A destructive thunder, hail, and wind storm caused about \$10,000 damage at Scottdale, Pa., at 6.30 p. m.; the storm moved northeast.

4th.—A hailstorm damaged fruit at New River, Ariz. Storms caused considerable damage in Arkansas, Kansas, Nebraska, Missouri, Tennessee, Kentucky, Illinois, Ohio, Wisconsin, and Michigan. At Little Rock, Ark., thunderstorms, with heavy showers, occurred at intervals during the morning. At 11.30 a. m. a tornado moved northeast near Carlisle, Ark., with heavy rain after; no thunder and lightning were reported. A whirling, funnel-shaped cloud of a bluish color appeared.

Damage to property estimated at \$1,500. At Pine Bluff, Ark., a very black cloud, with heavy rain, moved northeast at 11.55 a. m. The path of the storm was 50 yards in width, and property was destroyed to the value of \$15,000 to \$20,000.

A tornado, moving north, was reported near Lonoke, Ark., about 11 a. m. The storm had a whirling motion and was attended by heavy rain; the path of destruction was about 200 yards in width, and several persons were injured. From 1 to 3 a. m. a heavy thunderstorm moved northeast near Cove, Ark., prostrating timber. A south to southwest gale prevailed at Leavenworth, Kans., the wind reaching a velocity of 51 miles per hour, and an extreme velocity of 56 miles per hour.

A severe windstorm, blowing at the rate of 52 miles per hour, occurred at Topeka, Kans. At Valentine, Nebr., high north winds, reaching a velocity of 52 miles per hour, prevailed. Snow fell and formed drifts 2 to 6 feet in depth, blockading trains and causing a heavy loss of stock on the ranges. Near Gordon, Nebr., snow drifts were reported 20 feet in depth.

A severe gale from the northwest prevailed at North Platte, Nebr. At Emporia, Kans., buildings were unroofed by high wind; the wind was attended by hail and muddy rain. A severe storm from the southwest passed through the southern part of Cape Girardeau county and the northern part of Perry county, Mo. The storm was heavy over western Tennessee. At Sharon, Tenn., a tornado moved northeast in a path 200 yards in width at 8.30 p. m., with thunder and lightning, hail before, and rain after. A heavy thunderstorm was reported near Dresden, Tenn., at 8.30 p. m.; very heavy rain fell; timber and frail buildings were prostrated in a path 200 yards in width. At Russellville, Ky., a thunderstorm, with very heavy rain, moved northeast at midnight; the path of destruction was 75 yards in width; 3 persons were injured, and the damage to property was placed at \$1,500.

At 4.35 p. m. a tornado, with heavy rain and some hail, moved east of north over Barnhill, Ill., damaging property to the extent of about \$10,000. A heavy thunderstorm, with rain and large hail, moved northeast over Staunton, Ill., at 7 a. m. A hard gale, with rain, caused damage about Palestine, Ill. Destructive local storms occurred in Wisconsin. Near Livingston, Wis., a tornado, with rain, hail, thunder, and lightning, moved northeast in a path 2 to 10 rods in width. The storm had a whirling motion, and debris was thrown north. Destructive storms were also reported at Platteville, Whitewater, Wautoma, and Oconomowoc, Wis. At Palo Alto, Miss., 10.17 inches of rain fell from 4 a. m., 4th, to 5 a. m., 7th, causing great damage to property and stock in that section. At Detroit, Mich., a gale set in the morning of the 4th and continued through the 5th, the wind reaching a velocity of 50 to 60 miles per hour; considerable damage was caused to buildings, trees, etc.

5th.—Severe storms occurred from Tennessee to New York. A heavy thunderstorm occurred at Chattanooga, Tenn., in the evening. At Chicago, Ill., westerly gales prevailed, the maximum wind velocity being 63 miles per hour from the southwest. A whirling storm of small diameter, moving from the southwest, was reported at Chicago about 8 a. m. It leveled everything in its path, including the Illinois State Buildings at the World's Fair Grounds, and caused damage at the Fair Grounds amounting to about \$30,000. High westerly winds, reaching a velocity of 60 miles per hour at 12.10 p. m., prevailed at Toledo, Ohio. At Port Huron, Mich., the wind velocity was 40 to 60 miles per hour from the southwest during the afternoon. A destructive storm moved northeast over Olean, N. Y., at 8.45 p. m., with heavy rain and small hail. A funnel-shaped cloud was observed. The path of destruction was about 100 feet in width. One person was killed, a number of persons were injured, 6 buildings were demolished, 14 damaged, and the estimated value of property destroyed was \$25,000. From the 5th to 7th exceptionally heavy rainfall in Alabama and northern Mississippi resulted in considerable damage to railroad and other property.

7th.—Heavy rain, thunder, and hail storms were reported in Tennessee.

10th.—Destructive hailstorms were reported in central and northeastern Texas.

12-13th.—A heavy wind and snow storm prevailed over Iowa and Dakota.

13th.—A thunderstorm, with heavy rain and hail, moved northeast over Palestine, Tex., in the afternoon. A thunderstorm from the west visited Shreveport, La., in the afternoon; heavy rainfall flooded streets, and some hail fell. Heavy wind, rain, and snow storms prevailed in the West and Northwest.

14th.—Heavy thunder and hail storms occurred from Georgia to Virginia, and rain changing to snow was reported in New Jersey and New York. In Dinwiddie county, Va., a house was blown down and one person killed. Several buildings were destroyed by high wind in Princess Anne county, Va. High wind prevailed on the north Pacific coast. At Fort Canby, Wash., a velocity of 82 miles per hour from the south was reached. At Chicago, Ill., the wind attained a velocity of 65 miles per hour from the north.

17th.—Severe thunder and hail storms occurred in Arkansas and western Missouri. Heavy snow fell in extreme western Nebraska from the 17th to 20th.

18th.—Heavy snow fell in eastern Colorado during the 18th and 19th. Severe thunder, rain, and hail storms occurred on the 18th from northeast Texas to Illinois. At Saint Francis, Ark., a hailstorm lasting 5 minutes occurred in the evening, killing some stock. The hailstones were unusually large, and what appeared rotten wood was found in the center of some of the stones. Remarkably large hailstones also fell at Boyds-ville and Rector, Ark. At Olney, Ill., a house was struck by lightning.

19th.—Severe thunderstorms occurred in Texas, Kansas, Oklahoma Territory, Tennessee, and Georgia. At Wichita, Kans., the City Building was struck by lightning and damaged. A thunderstorm, with high wind, damaged crops about Oklahoma City, Okla. Poultry was killed by hail at Atlanta, Ga.

20th.—Very heavy rain fell in Louisiana, Arkansas, and southern Mississippi. Destructive local storms occurred in Kansas, Arkansas, Louisiana, and Texas. A tornado visited the southern parts of Prairie and Lonoke counties, Ark., in the afternoon, causing great damage to buildings and other property and injuring several persons. Thunder, wind, and hail storms were destructive to property in Upshur, Gregg, and Hunt counties, Tex. A tornado was reported about 9 a. m. in Caddo parish, 12 miles south of Shreveport, La. The storm

crossed the Red River into Bossier parish, destroying buildings, etc., in a path about 400 yards in width. Heavy rain in southern Mississippi seriously interfered with railroad traffic.

21st.—Heavy rain and local storms occurred in southern Louisiana and on the middle Gulf coast. At New Orleans, La., the river front and the parks were flooded to a depth of 3 to 36 inches, and traffic was suspended in the morning. One man was struck and several persons were shocked by lightning. Lightning struck and set fire to the building of the Louisiana Jockey Club; a cotton shed was also struck by lightning. At Abbeville, La., lightning struck in 4 places, and 2 persons were killed by lightning.

24th.—High wind prevailed on the north Pacific coast. A wind, snow, sleet, and rain storm prevailed in the mountains near Carson City, Nev., the wind reaching a velocity of 47 miles per hour in the evening. Heavy rain and thunder storms occurred in Louisiana.

26-27th.—High winds and heavy snow prevailed over Nebraska and the Dakotas, causing loss of young cattle.

27th.—A severe storm prevailed from the Dakotas to Michigan. A thunderstorm of exceptional intensity occurred at Huron, S. Dak., in the early morning. At Duluth, Minn., a heavy thunder and rain storm occurred in the early morning. In the afternoon the wind shifted to southwest, and the ice in the lake began to break up. At Marquette, Mich., ice forced into the harbor by heavy southeast wind interfered with the movement of vessels. During a thunderstorm at Grand Haven, Mich., several houses were struck by lightning. At Saint Vincent, Minn., the pressure decreased rapidly until 4 p. m., and rain changed to snow at 3.45 p. m. In the afternoon the wind backed from northeast to northwest, and in the early morning of the 28th reached a velocity of 65 miles per hour from the northwest, damaging the Great Northern depot. At Fairmount, Ill., a house was struck by lightning.

28th.—An exceptionally heavy rainstorm occurred in the afternoon at Healdton, Ind. T., 5.97 inches of rain falling in 3 hours, damaging crops, etc. At Atlantic City, N. J., the wind veered from south and southwest to northwest and increased in strength; a small sidewheel steamer, in tow by a tug, sank near that station. From the 28th to 30th high winds and snow prevailed at intervals at Sault de Ste. Marie, Mich., detaining and damaging vessels.

30th.—A heavy thunder and rain storm occurred at Crete, Nebr.; 3.82 inches of rain fell in 3 hours and 25 minutes, flooding the lower parts of the town. At Walcutt, Ill., a thunderstorm, with heavy rain, occurred in the afternoon; one mile south of that place 3 horses were killed by lightning.

INLAND NAVIGATION.

FLOODS.

In the early part of the month the smaller streams in Illinois, Missouri, and Tennessee rose rapidly and caused considerable damage of a minor nature. On the 4th and 5th the Hudson River was very high at Albany, N. Y., and piers and railroad tracks were submerged. The Mohawk, Genesee, and Black rivers in New York, and streams in Vermont, were very high. From the 6th to 8th the Tennessee River rose rapidly at Knoxville, Tenn. On the 7th rivers and streams in northern Mississippi overflowed their banks, doing much damage to plantations. At Grenada, Miss., the Yallahusha River was reported the highest ever known. At Chattanooga, Tenn., the Tennessee River rose rapidly on the 6th, with drift, and in northern Alabama railroad tracks were flooded; 7th, river rose to 21.8 feet at Chattanooga, a rise of 13.3 feet in 24 hours; 8th, river continued rising and reached 31.6 feet at Chattanooga, and on the 9th became stationary at 5 p. m., after which it subsided.

On the 9th high water in streams in northern Mississippi damaged railroads. Much damage was caused by flood in Alabama. The Coosa River overflowed, inundating large

areas. High water in the Tombigbee River and tributaries submerged farm lands, drowning about 100 persons, and carrying away live stock in east-central Mississippi. On the 13th the Tombigbee River rose very rapidly at Demopolis, Ala., flooding railroads, carrying away bridges, etc. On the 10th the Red River of the North reached a stage 30 feet above low-water mark at Saint Vincent, Minn., overflowing its banks. High water in the Illinois River flooded large tracts of farm land about Beardstown, Ill. Streams in Arkansas were rising rapidly.

On the 6th the Mississippi River reached the danger-line, 40 feet, at Cairo, Ill.; on the 11th it reached 45.8 feet, and then fell steadily to 43.9 feet on the 20th, when it began to rise, and reached 48.3 feet on the 28th; it remained nearly stationary until the 30th, and then fell slowly. At Memphis, Tenn., the river passed the danger-line, 33 feet, on the 14th; rose slowly to 34.3 feet on the 22d; fell to 34.2 feet on the 23d and to 34.1 feet on the 26th; and rose to 34.5 feet, 1.5 foot above the danger-line, on the 30th. At Vicksburg, Miss., the river passed the danger-line, 41 feet, on the 14th, and rose